CW#20: Preppy the Puppy needs a Home!

Geometry

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TP: \_\_\_\_\_\_\_

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| **CRS** | MEA 401 Compute the area and perimeter of triangles and rectangles in simple problems. |
| **Objective** | 3.1 Students will be able to formulate which shapes minimize and/or maximize area from a given perimeter |

Preppy the Puppy!

**CLASS COPY! DO NOT WRITE ON PLEASE…**

Congratulations! After years of begging your parents/guardians for a puppy, your wishes have finally come true! Introducing your new pet puppy, Preppy the Puppy! Now as your parents/guardians and maybe even your older siblings have already told you, with a new puppy comes a whole new set of responsibilities… the first of which is making sure Preppy the Puppy has a place to run around safely in the yard! Thank goodness you are taking Geometry this year to help you with this task.

For each of the following questions you have only 36 feet of fencing to work with exactly and dimensions have to be integer numbers (no halves, quarters, eights, etc.). Within each scenario you have to draw a scaled diagram of your fencing on graph paper. Each square on your graph paper represents 1 square foot. For each scenario you must also show your calculations proving that you used exactly 36 feet of fencing (perimeter) and what the resulting area of the playpen.

1. Your first task at hand is to figure out what dimensions of the playpen will produce the *smallest* area (minimize) for Preppy the Puppy!
2. Your second task is to figure out what dimensions of the playpen will produce the ***largest*** area (maximize) for Preppy the Puppy.
3. Your third task is to figure out what dimensions of the playpen will produce an area *in between* the area of the smallest and largest values found in task 1 and 2.
4. Your fourth task is to figure out what dimensions of the play pen will maximize the volume of the playpen using the side of your house that is 50 feet long. You do not need to use the whole side of your house for your playpen but you DO NOT need to use any fencing on for the side of the playpen that is next to the house because there will already be a wall there to prevent Preppy the Puppy from getting out.
5. And last but not least, summarize your findings for tasks 1-4. Be sure to answer the following questions in your summary: What measurement does the amount of fencing we have represent (area/perimeter)? Which shapes minimized the area? Which shapes maximized the area? How do you find area? How do you find perimeter?